DOCUMENT RESUME

ED 459 050 RC 023 270

AUTHOR	Henchy, Geri; Cheung, Marisa; Weill, Jim
TITLE	WIC in Native American Communities: Building a Healthier America. Report Summary.
INSTITUTION	Food Research and Action Center, Washington, DC.
SPONS AGENCY	General Mills Foundation, Wayzata, MN.
PUB DATE	2000-00-00
NOTE	19p.; Also sponsored by the Gerber Foundation.
AVAILABLE FROM	For full text: http://www.frac.org/html/publications/pubs.html.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	At Risk Persons; *Child Health; Federal Programs; Health Education; Hunger; *Infants; *Mothers; *Nutrition; Physical Health; Poverty; Prenatal Care; *Reservation American Indians; Rural Areas; Young Children
IDENTIFIERS	*Food Security; *Women Infants Children Supplemental Food Program

ABSTRACT

WIC, the Special Supplemental Nutrition Program for Women, Infants, and Children, is a federal program operated through state and local agencies. American Indian tribal organizations administer WIC programs on tribal lands. There are currently 32 tribal WIC programs. Tribes often contribute significant resources of their own in the form of office and clinic space, and some cover additional costs such as salaries for breastfeeding coordinators. By offering culturally appropriate services specific to Native Americans' nutrition and health concerns, tribal WIC programs meet the special needs of a population that has long suffered from high rates of hunger, undernutrition, and maternal and child health problems. Tribal WIC programs particularly help provide continuity of care in geographically isolated tribal lands. WIC has helped improve the health of women, infants, and children in Native American communities through providing nutritious supplemental foods and nutrition education, and working with other programs to improve access to health care. The health and nutritional status of women, infants, and children in Native American communities is better in many respects than a generation ago. Native Americans have seen significant declines in the rates of anemia, growth stunting, underweight, and maternal and infant mortality over the last 25 years. Despite these important gains, the new challenges of high levels of obesity and diabetes and the persistent problem of food insecurity must still be met. (TD)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 459 050

WIC In Native American Communities: Building A Healthier America

Report Summary

Food Research and Action Center

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
J. H. Weill
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

ABOUT THE FOOD RESEARCH AND ACTION CENTER

The Food Research and Action Center (FRAC) is the leading national organization working for more effective public and private policies to eradicate domestic hunger and undernutrition.

FRAC is the national coordinator of the Campaign to End Childhood Hunger, an effort of hundreds of national, state and local organizations working to maximize access to and use of federal nutrition programs as a vehicle for ending childhood hunger.

ACKNOWLEDGMENTS

This report was prepared by Geri Henchy, Marisa Cheung and Jim Weill. Assistance and review were provided by Lynn Parker. Assistance with data collection and computer work were provided by Jill Reedy and Christin Driscoll.

FRAC also appreciates the assistance of the WIC community in preparing this report: the National Association of WIC Directors' Native American and Indian WIC Committee; Karen Sell, Inter-Tribal Council of Arizona; Jody Holt, Nevada Inter-Tribal Council; Bea Carson, Mississippi Band of Choctaw Indians; La'Rue Medina, ACL-NM; Kim Shawhart Choctaw Nation of Oklahoma; Theresa Byrant, Eastern Band of Cherokee Indians; Betty Atencio, Eight Northern Indian Pueblos Council; Adele King, Navajo Nation; Ruby Wolf, Pueblo of Zuni; Anita Seneca, Seneca Nation; and Delphine Baker, Ute Mountain Tribe; and from the National Association of WIC Directors' national office, Douglas Greenaway and Cecelia Richardson.

FRAC is also grateful for the assistance of the food program and research experts at the United States Department of Agriculture: Edward Cooney, Ronald Vogel, Patricia Daniels, Patricia O'Kelley, Missy Johnson, Gloria Morton, Gary Bickel and Mark Nord. In addition, we would like to thank Kelley Scanlon of the Centers for Disease Control for her expert assistance.

The Food Research and Action Center gratefully acknowledges the invaluable core support that the Gerber Foundation and the General Mills Foundation has provided for FRAC's work on WIC, including this publication. We also thank the many supporters of the Campaign to End Childhood Hunger, including the, MAZON: A Jewish Response to Hunger, The Moriah Fund, National Dairy Council, New Prospect Foundation, Open Society Institute, the David & Lucile Packard Foundation, the Public Welfare Foundation, and Share Our Strength.

Copyright©2000 Food Research and Action Center

WIC In Native American Communities: Building A Healthier America

Food Research and Action Center
1875 Connecticut Avenue, N.W., Suite 540
Washington, D.C. 20009
(202) 986-2200; Fax (202) 986-2525
www.frac.org

WIC In Native American Communities: Building A Healthier America

Contents **Page Number**

Introduction	1
WIC: A Preventive Nutrition Program	2
Making a Difference: The Impact of WIC on Maternal and Child Health	2
History of Indian Tribal Organization WIC Participation	4
Hunger and Poverty in the Native American Community	4
Native American Nutrition Today	5
Native American Health Today	6
Maternal Health	6
Infant Health	7
Preschool Children's Health	8
Native American Health	8
WIC Works In Native American Communities	10

WIC In Native American Communities: Building a Healthier America

Native American communities have been successful in establishing Indian Tribal Organization WIC programs across the nation to address the nutrition and health needs of Native American women, infants, and young children. This publication is one of a series the Food Research and Action Center is issuing to document WIC's 25 years of success around the nation. It reviews the accomplishments of the Indian Tribal Organizations and documents participation in their WIC programs.

WIC, the Special Supplemental Nutrition Program for Women, Infants, and Children, is a federal program that has grown nationally from serving 88,000 women, infants, and children to serving over 7.3 million. WIC is operated through state and local agencies. Indian Tribal Organizations function as state agencies for the Indian Nations, administering WIC programs primarily on tribal lands. The programs are geared toward addressing the distinct needs of Native Americans.

There are currently thirty-two Indian Tribal Organization WIC programs. While these programs are funded by federal WIC dollars, tribes often contribute significant resources of their own in the form of office and clinic space, and some cover additional costs such as salaries for breastfeeding coordinators.

By offering services specific to Native Americans' nutrition and health concerns, the Indian Tribal Organization WIC programs meet the special needs of a population that has long suffered from a high prevalence of hunger, under-nutrition, and maternal and child health problems. Indian Tribal Organization WIC programs particularly help provide continuity of care in geographically isolated tribal lands.

Indian Tribal Organization WIC programs have enabled Native Americans to obtain access both to essential nutrition and to culturally appropriate services and family-centered activities from health professionals who are part of the community and therefore familiar with their practices and needs. For example, Indian Tribal Organization WIC programs address the needs of Native American multi-generational households that include grandmothers who help care for the pregnant women and children and who are most comfortable speaking their native language. Indian Tribal Organization WIC programs are staffed with professionals who speak the appropriate languages and utilize educational materials that are designed specifically for Native American families.

WIC: A Preventive Nutrition Program

Under federal law, to be eligible for WIC an individual must be: low-income; nutritionally at-risk; and a pregnant or postpartum woman, infant, or child under the age of five. To qualify as low-income, an individual's household income must be below 185 percent of the federal poverty level ($26,178 for a family of three in 2000). Nutritional risk is evaluated by a health professional, and can include problems such as: inadequate weight gain during pregnancy; a history of high-risk pregnancies; growth problems in children and infants, such as stunting, underweight, or obesity; anemia; or an inadequate dietary pattern.

Once eligible, the participants receive a monthly food package --supplemental foods to augment basic resources and diet-- tailored to meet their special dietary needs. The foods are chosen to provide protein, iron, calcium, and vitamins A and C -- nutrients likely to be missing from the diets of low-income women, infants and children. Authorized WIC foods include iron-fortified infant formula, infant cereal, milk, eggs, cheese, iron-fortified breakfast cereal, Vitamin C-rich juice, beans, tuna fish, carrots and peanut butter.

The most common method for providing WIC supplemental foods is through the retail purchase system -- clients receive checks or coupons they can cash in for specific foods at a grocery store. In some areas where isolation and lack of transportation prevent Native American clients from taking advantage of these benefits, Indian Tribal Organization WIC programs address these barriers by using a direct home delivery system.

WIC provides more than food basic to health and development. Through nutrition education offered by WIC, mothers learn about their specific nutritional needs and those of their infants and children, and how to meet those needs. The program also provides breastfeeding support and education to new mothers. In addition, clients are screened and referred to other necessary health and social services, such as prenatal care, well baby care and immunizations.

Making a Difference:
The Impact of WIC on Maternal and Child Health

Numerous studies have shown the tremendous success of WIC in improving the health and nutritional status of women, infants and children enrolled in the program, and in saving health care dollars[1].

- WIC is successful in improving participants' health and nutritional status, bringing them into the health care setting, and preventing health problems.

- WIC improves the dietary intake of pregnant and postpartum women and improves weight gain in pregnant women.
- Pregnant women participating in WIC receive prenatal care earlier.
- WIC increases the duration of pregnancy and reduces low birth weight rates.
- WIC reduces fetal deaths and infant mortality.
- WIC decreases the incidence of iron deficiency anemia in children.
- WIC significantly improves children's diets.
- WIC improves the growth of at-risk infants and children.
- Children enrolled in WIC are more likely to have a regular source of medical care and are more likely to be immunized.
- WIC helps prepare children for school: children who receive WIC benefits demonstrate superior cognitive development.
- WIC saves money by preventing costly health problems.

Given the poor health status of many Native American women, infants and children, the WIC program is key to combating these conditions. A number of studies conducted before the WIC program was available revealed serious malnutrition among Native American infants and children.[2] For example, one study in the Navajo nation found that infants were dying from malnutrition related to weaning and lack of nutritious infant formula.[3] The implementation of WIC and other programs has prevented these tragic deaths. The rates of anemia, growth stunting and underweight among Native American children all have decreased over the last quarter of a century. Native Americans have seen a steady decline in both maternal and infant mortality rates.

As discussed below, despite the contribution that WIC has made to the important gains in health and nutrition in Native American communities, there are new challenges to face in dealing with high levels of obesity and diabetes. In addition, poverty in Native American communities continues, causing continued high levels of food insecurity even though WIC has been making a real contribution to improving the health and nutrition in these communities.

History of Indian Tribal Organization WIC Participation

Indian Tribal Organization WIC programs have been serving participants since 1976, when the Cheyenne River Sioux Tribe WIC program, Rosebud Sioux WIC program and Shoshone and Arapahoe WIC program first began. The need for Indian Tribal Organizations to operate WIC programs was recognized shortly after WIC began in 1974. As funding has increased, the program's caseload has expanded to serve more of the eligible clients. Overall, American Indian or Alaskan Native participants make up about 1.7 percent of the national WIC caseload. Approximately half are served through the Indian Tribal Organizations and the other half are served through State WIC programs. Participation in the State WIC programs is covered in a companion FRAC report. *WIC In The States: Twenty-Five Years of Building A Healthier America.*

Indian Tribal Organization WIC has grown from serving an average of 2,433 women, infants and young children each month in 1976 to serving an average of 57,428 each month in fiscal year 1997. Overall, in each tribal organization there has been a substantial increase in participation since the program began.

Indian Tribal Organization participation trends, however, show more year-to-year variation than national trends. These fluctuations are related to a number of factors, including the level of federal funding, the timing of federal funding decisions, fluctuations in WIC food prices, and economic conditions in some areas that have caused migration from tribal lands to urban areas.

Hunger and Poverty in the Native American Community

The U.S. Department of Agriculture defines "food insecurity" to include resource constraints leading to such serious problems as the family suffering hunger, or being unable to purchase a balanced diet or enough food for their children, or the parents skipping meals so the child can eat. The Native American community suffers from a much higher rate of food insecurity and hunger than the general population. The rates of food insecurity and hunger among Native Americans are twice the already too high rates for the general U.S. population, and three times higher than the rates for White Americans. Food insecurity and hunger take a serious toll on the health and well-being of the Native American community.

The U.S. Department of Agriculture found that 22.2 percent of Native American households were food insecure over the 1995 to 1997 period, meaning that they did not have access to enough food to meet their basic needs. Many of these households reached the level of food insecurity that was great enough to cause the U.S. Department of Agriculture to determine that one or more members of their household suffered from moderate or severe hunger during that period: 8.6 percent of the Native American households -- one out of

twelve -- experienced food insecurity with hunger.*

Poverty is, of course, the principal factor in causing food insecurity, hunger, malnutrition and undernutrition among Native Americans. The association between poverty, hunger and food insecurity has been well documented. A number of studies, including FRAC's Community Childhood Hunger Identification Project and the U.S. Department of Agriculture's studies of Household Food Security, provide evidence that poverty and food insecurity are inextricably linked.[4] The U.S. Department of Agriculture found that "food insecurity prevalence rates, at all levels of severity, decline consistently as household income levels increase."[5]

According to 1990 Census data, 31.6 percent of Native Americans lived below the poverty level, compared to 13.3 percent of the total United States population. Native Americans had the highest level of unemployment of any racial or ethnic group surveyed by the 1990 Census; 16.2 percent of men and 13.4 percent of women were unemployed. This was over twice the national unemployment rate for all races: 6.4 percent for men, and 6.2 percent for women. According to the Bureau of Indian Affairs most recent report, half the Native American workforce in Indian Country (on-or-near the reservations) remained unemployed – 50 percent in 1997.[6] The Bureau of Indian Affairs also reported that 30 percent of the employed Native Americans in Indian Country still live below the poverty line.[7] The consequence of such poor economic circumstances is that 43 percent of Native American children under the age of 5 are living in poverty.[8]

Over 72 percent of the Native Americans participating in WIC have incomes below the federal poverty level. This is the highest percentage of families below the poverty line of any group participating in WIC, including White, Hispanic, African-American, and Asian or Pacific Islander WIC participants.

Native American Nutrition Today

Living in poverty has taken its toll on the health and nutritional status of Native Americans in a number of ways. The consequences of poverty then are exacerbated for the many Native American communities located in remote areas. Often in these remote areas food costs are high and selection is limited. Poverty also imposes barriers on transportation options. Isolation and financial constraints have forced families in these rural areas to rely on less expensive, often high-fat foods, and few fruits and vegetables.

---

* The U.S. Department of Agriculture measured food security and hunger in Native American (American Indian, Aleut, Eskimo) households in 1995,1996, and 1997. Based on this three-year data set, the U.S. Department of Agriculture calculated average rates of hunger and food insecurity for Native American households.

Research indicates that 35-40 percent of the energy in an average modern-day Native American diet is derived from fat, in stark contrast to the high carbohydrate, low-fat diet of previous generations.[9,10,11] Native American communities often cite lack of availability, poor quality, and high expense as barriers to fruit and vegetable intake.[12] Additional studies show that the median Native American intake of many essential micronutrients is substantially below the U.S. Recommended Dietary Allowances, for all age groups.[13,14]

The USDA Food Distribution Program on Indian Reservations provides commodities that are a significant source of food in many Native American communities. Unfortunately, until recently, the commodity foods, which provide the basis for many Native American diets, were very high in fat. The Indian Nations, with the Navajo Nation taking the lead, worked in coalition with other groups to bring about improvements in the nutritional standards for commodity foods. The USDA Food Distribution Program on Indian Reservations now provides a wider selection of foods, including lower fat meats and fruits and vegetables. These changes are too recent to be reflected in the currently available studies of the dietary intake of Native Americans.

As folate, calcium, and iron are among the many nutrients in which Native American diets are insufficient, these findings have serious implications for the health of pregnant women and infants in particular. WIC offers these women, infants and children a means of preventing such nutrient deficiencies. Native American groups, in the midst of widespread social, environmental, and economic changes, are thus in dire need of the better food resources and culturally sensitive nutrition education that WIC provides.

Native American Health Today

Maternal Health

Despite the serious health problems and health care access barriers that many Native Americans face, some trends have improved. Native Americans and Alaskan Natives have seen a steady decline in their maternal mortality rate, from 28 per 100,000 live births in 1973 to 4 per 100,000 live births in 1993, a decrease of 86 percent.[15] This compares to 7.5 per 100,000 births in the United States for all races, and 4.8 for Whites. Likewise, trends in receipt of prenatal care during the first trimester have been improving remarkably in the Native American population. The percentage of Native American women receiving early prenatal care has risen from 38.2 percent in 1970 to 66.7 percent in 1995. Still, this is far below the percentage for non-Hispanic white women, 83.6 percent of whom reported receiving early prenatal care in 1995.[16] Among women of all races and ethnicities, Native American women have consistently had the lowest percentage receiving early prenatal care.

Gestational diabetes has long had deleterious effects on Native American women. For calendar years 1992-1994, there were 53.8 births to diabetic mothers per 1,000 births, which is more than double the national rate of 26 per 1,000 births.[17] A 1997 study of Navajo women reported that 42 percent of participants who had diabetes during pregnancy were subsequently diagnosed with non-insulin dependent diabetes within four years.[18]

Breast-feeding rates have increased in numerous Native American groups, which have been involved in WIC breast-feeding promotion programs. These culturally appropriate programs have been successful in bettering both initiation rates and the duration of breast-feeding among participants.[19,20] According to the Centers for Disease Control and Prevention, Native Americans have a higher rate of breast-feeding, 56.2 percent, than the general population, 46.2 percent.[21]

Infant Health

The health of infants in the Native American community has improved a great deal in the last quarter of a century. The U.S. Department of Health and Human Services, Indian Health Service, reports that the infant mortality rate for Native Americans dropped from 22.2 (rate per 1,000 live births) in 1972-1974 to 8.7 in 1992-1994, a decrease of 61 percent.[22] However, the infant mortality rate for Native Americans, 8.7 per 1,000 live births, is still higher than the average rate for all races, 7.2 per 1,000 live births.[23]

Epidemiological studies of Sudden Infant Death Syndrome in the United States have consistently reported an exceptionally high incidence among Native Americans, relative to non-Hispanic whites.[24] Native American infants in Washington State, for example, were found to be more than three times more likely to die from Sudden Infant Death Syndrome than white infants.[25]

The Native American rate of high birthweights, 12.5 percent, is higher than the national rate of 10.5 percent. High birthweight does not indicate a significantly greater risk of death, but is an important health indicator because high birthweight is a complication of diabetic pregnancies. On the other hand, the Native American community has a lower rate of low weight births, 5.9 percent, than the nation generally, 7.2 percent.[26] This is an important indicator of infant health status because low birthweight babies have a much higher mortality rate. The Centers for Disease Control and Prevention report that, out of all the States and other jurisdictions submitting data for the Pediatric Nutrition Surveillance system, only two met the year 2000 health objective to reduce low birthweight to no more than 5 percent of all live births: the Cheyenne River Sioux and Rosebud Sioux tribal governments.[27] (The Pediatric Nutrition Surveillance system includes 44 states, the District of Columbia, and five tribal governments.)

Preschool Children's Health

The health of children in Native American communities has improved considerably over the last twenty-five years, but even more improvement is needed. The rates of anemia, growth stunting and underweight among Native American children all have decreased over the last quarter of a century. The Centers for Disease Control and Prevention's pediatric nutrition surveillance data show that the rate of growth stunting for American Indian and Alaska Native children aged 2 to 5 years, which is 3.8 percent, is now the lowest of any racial and ethnic group in the United States.[28] Despite the fact that there has been improvement in the rate of growth retardation, the problem still exists and must be addressed.

Like most populations living in poverty, Native Americans experience a high prevalence of anemia. Iron-deficiency anemia is strongly associated with developmental delays and behavioral disturbances in children. The Pediatric Nutrition Surveillance Survey data reveal that, even though the rate has declined over the years, it is still too high: 18.6 percent of Native American or Alaskan Native children less than 2 years old have anemia.[29] This is slightly higher than the general population rate of 18.4 percent and considerably higher than the White rate of 15.2 percent.

Dental caries have become a widespread health problem for Native American infants and children. One study of Navajo preschool children found the prevalence rate of dental caries among three-year-olds to be as high as 68 percent.[30] Other research found that the prevalence of caries among Native American children ranged from 26 percent for toddlers twelve to eighteen months old to 56 percent for children eighteen to thirty-six months old.[31]

Native American Health

Native Americans are witnessing a surge in the prevalence of obesity and diabetes. In a population that suffers extensive morbidity and mortality from cardiovascular disease, diabetes mellitus, and other obesity-related diseases, the growing prevalence of obesity has severe consequences.

The Navajo Health and Nutrition Survey found that roughly one half of men age 40 to 59 years old, and two-thirds or more of women in all age groups are overweight.[32] These results coincide with countless studies that reveal high rates of excess weight and obesity among numerous Native American groups. In some areas, up to forty percent of Native American and Alaskan Native children are reportedly overweight.[33] The problem starts early. By age 2 to 5, approximately 13 percent of Native American preschool children are already overweight.[34]

The problem of overweight is not limited to Native American children. The percentage of overweight children has been increasing for all groups in the United States. The Native American rate is considerably higher than the overall U.S. rate for children 2 to 5 of 8.6

percent.[35] The increasing problem of obesity in Native American communities is caused by a complex set of interactions of poverty, isolation, food insecurity, lifestyle changes and, potentially, genetics.

As discussed earlier, poverty and isolation limit the food choices in some Native American communities -- forcing families to rely on a diet made up primarily of high fat foods and cheap starches.

Food insecurity and hunger are also factors that are contributing to the increased rates of obesity. As was discussed earlier, Native Americans have a much higher rate of food insecurity and hunger than other Americans. Hunger and food insecurity can be causal factors in obesity.[36] The Community Childhood Hunger Identification Project found that hunger in families is often cyclical, occurring at the end of the month, when welfare payments, paychecks, or food stamps run out.[37]

To keep a roof over their heads, poor families generally pay rent and utilities first and then use whatever is left for food. For many families, what is left over just does not buy enough food to last to the next paycheck. To cope with this situation, many families buy inexpensive, high calorie foods and prepare starchy, high fat meals to fill themselves up while there is food. This fills up the children but they become malnourished because they lack adequate vitamins and minerals, and they become overweight because they have a surfeit of calories.

Toward the end of the month or paycheck even this strategy may not work, because there is simply no money for food — first parents and then children go without meals. The psychological effect of this can be powerful. It can lead to overeating when the family finally has resources again. Some individuals may feel the need to stock up by eating as much food as possible while the food is available because they are afraid that at any time the food might run out again.

In addition, just as most Americans now live a very sedentary lifestyle, so do most Native Americans. Shifting from the very active traditional lifestyle to a sedentary lifestyle significantly lowers caloric requirements. This is particularly problematic for Native American groups that may have what has been called the "thrifty gene."[38] It has been postulated that some populations, which have survived through centuries of constant high physical demands, a relatively low-fat food supply and intermittent famine, have much higher numbers of individuals who have the "thrifty gene." This thrifty gene allows an individual to make the most of any calories he or she does ingest, protection in times of food shortages. When confronted with the typical American diet, however, the thrifty gene becomes a liability, because it means the individual will very effectively store much of the energy consumed as body fat.

The incidence of diabetes mellitus has risen to epidemic levels in a number of Native American communities. The Indian Health Service reports findings, which suggest that the prevalence of diabetes among Native Americans and Alaskan Natives is as high as three times that in non-Hispanic whites.[39] The Navajo Health and Nutrition Survey concluded that the prevalence of diabetes mellitus among Navajo Indians is 40 percent higher than previous estimates, and four times higher than the prevalence for the United States population as a whole.[40] In the past thirty years, the prevalence of diabetes among Native American youths has roughly doubled.[41]

WIC Works In Native American Communities

WIC has contributed to substantial improvements in the nutrition and health of women, infants and children in Native American communities. WIC has made a difference through providing nutritious supplemental foods and nutrition education, and working with other programs to improve access to health care. The health and nutritional status of women, infants and children in Native American communities is better in many respects than a generation ago. Native Americans have seen significant declines in the rates of anemia, growth stunting, underweight, and maternal and infant mortality over the last quarter of a century. Despite these important gains, there is still work to be done, including meeting the new challenges of high levels of obesity and diabetes and the persistent problem of food insecurity.

1. The Food Research and Action Center, *WIC A Success Story*; 1991.

2. Story M, et al. *Nutritional concerns in American Indian and Alaska Native children: Transitions and future directions*, The Journal of the American Dietetic Association, 1998;98(2).

3. Van Duzen J, et al., *Protein and calorie malnutrition among preschool Navajo Indian Children*, The American Journal of Clinical Nutrition 1969;22:1362.

4. Food Research and Action Center. *Community Childhood Hunger Identification Project: A Survey of Childhood Hunger in the United States*; 1995.

5. U.S. Department of Agriculture. *Household Food Security in the United States in 1995: Summary Report of the Food Security Measurement Project*.

6. U.S. Bureau of Indian Affairs, *1997 Labor Market Information on the Indian Labor Force*; 1997

7. U.S. Department of Housing and Urban Development. *Briefing on New Markets and Housing Initiatives on Indian Reservations*; 6/9/99.

8. U.S. Department of Health and Human Services. Indian Health Service, Office of Public Health. *Trends in Indian Health 1997*.

9. Boyce VL, et al. *The traditional Pima Indian Diet— Composition and adaptation for use in a dietary intervention study*, Diabetes Care 1993; 16(1): 369-371.

10. De Gonzague B, et al. *Dietary intake and body mass index of adults in 2 Ojibwe communities*, Journal of the American Dietetic Association, 1999;99(6): 710-716.

11. Ballew C, et al. *Intake of nutrients and food sources of nutrients among the Navajo: findings from the Navajo Health and Nutrition Survey*, Journal of Nutrition, 1997;127(10 Suppl): 2085S-2093S.

12. Harnack L, et al. *Diet and physical activity patterns of Lakota Indian adults*, Journal of the American Dietetic Association, 1999; 99(7): 829-835.

13. Story M, et al. *Nutritional concerns in American Indian and Alaska Native children: Transitions and future directions*, The Journal of the American Dietetic Association, 1998;98(2).

14. Ballew C, et al. *Intake of nutrients and food sources of nutrients among the Navajo: findings from the Navajo Health and Nutrition Survey*, Journal of Nutrition, 1997;127(10 Suppl): 2085S-2093S.

15. U.S. Department of Health and Human Services, Indian Health Services, Office of Community and Environmental Health Program Statistics Team, *Trends in Indian Health, 1997*.

16. U.S. Department of Health and Human Services. *Early Prenatal Care: Receipt of Prenatal Care in the First Trimester*, Trends in the Well-Being of America's Children and Youth, 1998: 210-211.

17. U.S. Department of Health and Human Services, Indian Health Services, Office of Community and Environmental Health Program Statistics Team, *Trends in Indian Health, 1997*.

18. Steinhart JR, et al. *Gestational diabetes is a herald of NIDDM in Navajo women. High rate of*

abnormal glucose tolerance after GDM, Diabetes Care, 1997;20(6): 943-947.

19. Long DG, et al. *Peer counselor program increases breast-feeding rates in Utah Native American WIC population* Journal of Human Lactation, 1995;11(4): 279-284.

20. Wright AL, et al. *Using cultural knowledge in health promotion: Breast-feeding among the Navajo*, Health Education Behavior, 1997; 24(5): 625-639.

21. U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. *Pediatric Nutrition Surveillance* 1997.

22. U.S. Department of Health and Human Services, Indian Health Services, Office of Community and Environmental Health Program Statistics Team, *Trends in Indian Health, 1997.*

23. U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. *Infant Mortality Statistics from the 1997 Period Linked Birth/Infant Death Data Set;7/30/99.*

24. Bulterys M, *High incidence of sudden infant death syndrome among northern Indians and Alaskan natives compared with southwestern Indians*, Journal of Community Health 1990;15(3):185-194.

25. Irwin KL, *Sudden infant death syndrome in Washington State: why are Native American infants at greater risk than white infants?* Journal of Pediatrics,1992;121(2):242-247.

26. U.S. Department of Health and Human Services, Indian Health Services, Office of Community and Environmental Health Program Statistics Team, *Trends in Indian Health, 1997.*

27. U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. *Executive Summary, Pediatric Nutrition Surveillance 1997.*

28. U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. *Unpublished Data 1997.*

29. U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. *Pediatric Nutrition Surveillance 1997.*

30. O'Sullivan DM, et al. *Dental caries prevalence and treatment among Navajo preschool children*, J Public Health Dent 1994 Summer; 54(3):139-144.

31. Tsubouchi J, et al. *A study of dental caries and risk factors among Native American infants*, ASDC J Dent Child 1995 Jul-Aug;62(4):283-7

32. White LL, et al. *Weight, body image, and weight control practices of Navajo Indians: findings from the Navajo Health and Nutrition Survey*, Journal of Nutrition,1997;127(10 Suppl): 2094S-2098S.

33. Statement of the American Dietetic Association on the FY 1998 Appropriations Legislation for the Indian Health Service; Before the House Committee on Appropriations, Subcommittee on the Interior; 3/6/97.

34. U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. *Unpublished Data 1997.*

35. U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. *Pediatric Nutrition Surveillance 1997.*

36. Dietz WH, *Does Hunger cause obesity?* Pediatrics 1995;95:766-767.

37. The Food Research and Action Center, *A Survey of Childhood Hunger in the United States*, 1995.

38. Hunger and nutrition problems among American Indians: A case study of North Dakota. Hearing before the Select Committee on Hunger House of Representatives. 100th Congress (1987) [microfiche CIS 88 H961-1]

39. *Prevalence of diagnosed diabetes among American Indians/ Alaska Natives--United States, 1996*, MMWR Morbidity and Mortality Weekly Rep, 1998; 47(42): 901-904.

40. Will JC, et al. *Diabetes mellitus among Navajo Indians: findings from the Navajo Health and Nutrition Survey*, Journal of Nutrition,1997; 127(10 Suppl): 2106S-2113S.

41. Dabelea D, *Increasing prevalence of Type II diabetes in American Indian children*, Diabetogia 1998 Aug;41(8):904-10.

Food Research and Action Center
1875 Connecticut Avenue, N.W., Suite 540
Washington, D.C. 20009
(202) 986-2200; Fax (202) 986-2525
www.frac.org